White LED Light Meter

Model LT40

Additional User Manual Translations available at www.extech.com
Introduction

Congratulations on your purchase of the Extech LT40 LED Light Meter that measures light intensity from white LED light sources. The LT40 can also measure light from fluorescent, metal halide, high-pressure sodium, and incandescent sources, for reference only (unspecified accuracy). The LT40 can measure light up to 40,000 Fc (400,000 Lux). This instrument is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website (www.extech.com) to check for the latest version of this User Guide, Product Updates, and Customer Support.

Features

- Overload Indication: The LCD will show OL.
- Low battery Indication.
- Display Update Rate: 2.5 times per second.
- Cosine Angle corrected.
- Measures white LED light.
- Measures the intensity of illumination in Lux or foot-candles.
- Data hold freezes displayed reading.
- Maximum/Average/Minimum reading Hold.
- Zero Calibration adjustment.
- Auto power off with disable function.
- Auto range.

Safety

- Do not operate the meter in environments where the following are present: explosive gases (or materials), combustible gases (or materials), steam, or dust.
- Please replace the battery immediately when the low battery symbol appears on the LCD.
- Do not touch the meter’s circuit board for any reason; static electricity or contamination could damage the sensitive components.
- For Indoor use only. This instrument was designed for pollution degree 2.
- Operation Altitude: Up to 2000m (7000’).
**Meter Description**

1. Photo detector (remove protective cover to expose sensor)
2. Display (LCD)
3. Control push-buttons
4. Power Button: ON/OFF

Battery compartment and tripod mount are located on rear of instrument

**Push-Button Description**

1. Lux/Fc units selector
2. Zero Calibration button
3. Maximum/Average/Minimum memory button
4. Data hold button

**Operation**

**Power ON/OFF**

Long press the Power button to power the meter. To power the meter OFF, short press the Power button.

**Taking Measurements**

1. Switch the meter ON and remove the sensor’s protective cover to expose the light sensor dome. The display should switch ON; if not, check that batteries are installed and fresh.
2. The meter measures the intensity of the light (illuminance) that strikes the sensor dome in foot-candles and Lux units (1 fc = 10.76 lux), displaying this measured value on its LCD.
3. Position the meter and light source so that the light strikes the sensor dome straight on (perpendicular) with as little an angle as possible.
4. The meter’s display can show a value up to 9999. However, for readings that represent measurements higher than this, the meter uses x10 or x100 feature. For example, to represent a measurement of 11,000 fc the meter will display 1100 with the x10 indicator.
**Auto Power OFF**

To save battery life, the meter powers down automatically after approximately 12 minutes of inactivity.

**Enable/Disable Auto Power Off**

While the meter is ON, long press the Power button to disable the Auto Power OFF utility (the Clock symbol 🕒 will switch OFF). To enable the Auto Power OFF utility, repeat this process.

**LUX/FC Button**

Press the LUX/FC button to toggle between Lux and FC (foot-candles) measurement units.

**MAX/MIN Button**

The meter can record the maximum, minimum, and average readings as described below:

1. Short press the “MAX/MIN” button and the meter will begin to track the maximum/average/minimum measurements; the “MAX” icon will display at the top of the LCD window indicating that the meter is now showing the maximum reading. The reading will not change until a higher reading is registered.
2. Press the “MAX/MIN” button again to switch from “MAX” to “AVG”, where the meter will show the average measurement value. The “AVG” icon will be displayed above the displayed value.
3. Press the “MAX/MIN” button again to change the mode from “AVG” to “MIN”, where the meter will show the minimum value measured. The “MIN” icon will be displayed.
4. Press the “MAX/MIN” button again to switch from “MIN” back to “MAX”.
5. To exit this mode, hold the “MAX/MIN” button for at least 2 seconds. The MAX/AVG/MIN icons should all be switched OFF when the unit returns to the normal operating mode.

**HOLD Button**

Press the HOLD button to freeze the current reading on the LCD. Press the HOLD button again to release the reading. In the Data Hold mode, HOLD is displayed on the LCD.

**Zero Calibration Procedure**

1. Ensure that the protective cap is attached to the light sensor.
2. Power the meter and the LCD should display ‘0’.
3. Short press the “CAL ZERO” button to perform the zero adjustment (CAL will appear on the display).
4. The CAL display will switch off when the calibration has been completed.
5. If the protective cap is not covering the sensor when the Zero calibration is started the LCD display will read CAP. In this case, please cover the sensor with the cap and restart this procedure.
Measurement Considerations and User Tips

- For maximum accuracy allow the light being measured to fall directly on the sensor as perpendicular as possible with a minimal angle of incidence.

![Light Source 0 degree](image)

- When the meter is not in use, please keep the protective cap in place over the light sensor. This will prolong the life of the sensor.
- When the meter is to be stored for long periods, please remove the batteries and store them separately. Batteries can leak and cause damage to the meter’s components.
- Avoid areas of high temperature and humidity when using this instrument.

Battery Replacement and Maintenance

Cleaning and storage

1. The white plastic sensor dome should be cleaned with a damp cloth when necessary. Use only a mild soap if needed. Do not use solvents, abrasives, or harsh detergents to clean the dome.
2. Store the meter in an area with moderate temperature and relative humidity.

Battery Replacement

When the battery power decreases to a critical level, the low battery symbol “!” will appear on the LCD. Replace the 2 x 1.5V AAA batteries located in the rear battery compartment.

1. Press and hold the battery compartment lock button (see diagram).
2. Slide the battery compartment cover off in the direction of the arrow.

Install two (2) 1.5V ‘AAA’ batteries observing correct polarity and close the battery compartment. Ensure that the compartment cover is securely fastened before using the meter.

Never dispose of used batteries or rechargeable batteries in household waste.

As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

Disposal: Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.
Specifications

<table>
<thead>
<tr>
<th>Units</th>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lux</td>
<td>999.9</td>
<td>0.1</td>
<td>White LED: ±(3%reading + 3 Lux) up to 500 Lux</td>
</tr>
<tr>
<td></td>
<td>9,999</td>
<td>1</td>
<td>±(3%reading) &gt;500 Lux</td>
</tr>
<tr>
<td></td>
<td>99,990*</td>
<td>10</td>
<td>Other light sources: Unspecified</td>
</tr>
<tr>
<td></td>
<td>400,000*</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Foot candles</td>
<td>99.99</td>
<td>0.01</td>
<td>White LED: ±(3%reading + 0.3 Fc) up to 46 Fc</td>
</tr>
<tr>
<td></td>
<td>999.9</td>
<td>0.1</td>
<td>±(3%reading) &gt;46 Fc</td>
</tr>
<tr>
<td></td>
<td>9,999</td>
<td>1</td>
<td>Other light sources: Unspecified</td>
</tr>
<tr>
<td></td>
<td>40,000*</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

* Readings above 9999 use a x10 or x100 multiplier  (1 Fc = 10.76 Lux)

<table>
<thead>
<tr>
<th>Angle deviation from cosine characteristics</th>
<th>30°</th>
<th>±2%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60°</td>
<td>±6%</td>
</tr>
<tr>
<td></td>
<td>80°</td>
<td>±25%</td>
</tr>
</tbody>
</table>

General Specifications

- **Sampling rate**: 2.5 times per second (digital display)
- **Photo detector**: Silicon photo-diode with cosine correction
- **Display**: 4-digit LCD (maximum display: 9999) with low battery icon, measurement overload, and other function indicators
- **Auto Range**: Meter automatically ranges the display
- **Operating conditions**: Temperature: 5 to 40°C (41 to 104°F); Humidity: < 80% RH
- **Storage conditions**: Temperature: -10 to 60°C (14 to 140°F); Humidity: < 70% RH
- **Low battery indication**: appears on the LCD when battery voltage falls critically low
- **LED Type**: White LED light
- **Power supply**: 2 x 1.5V ‘AAA’ batteries
- **Battery life**: Approximately 200 hours
- **Auto Power OFF**: Meter switches OFF after 12 minutes of inactivity
- **Dimensions**: 133 x 48 x 23 mm (5.2 x 1.9 x 0.9”)
- **Weight**: 250 g. (8.8 oz.) including batteries
## Appendixes

### Typical Light Levels (1 Fc = 10.76 Lux)

<table>
<thead>
<tr>
<th>Lux</th>
<th>Foot Candles</th>
<th>Lux</th>
<th>Foot Candles</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-75</td>
<td>2-7</td>
<td>Emergency Stairs, Warehouse</td>
<td>100-150</td>
</tr>
<tr>
<td>75-150</td>
<td>7-15</td>
<td>Exit/Entrance Passages</td>
<td>150-200</td>
</tr>
<tr>
<td>150-300</td>
<td>15-30</td>
<td>Packing Work</td>
<td>200-300</td>
</tr>
<tr>
<td>300-750</td>
<td>30-75</td>
<td>Visual Work: Production Line</td>
<td>300-500</td>
</tr>
<tr>
<td>750-1,500</td>
<td>75-150</td>
<td>Typesetting: Inspection Work</td>
<td>500-1,500</td>
</tr>
<tr>
<td>1,500-3,000</td>
<td>150-300</td>
<td>Electronic Assembly, Drafting</td>
<td>1,000-2,000</td>
</tr>
<tr>
<td>Office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75-100</td>
<td>7-10</td>
<td>Indoor Emergency Stairs</td>
<td>75-150</td>
</tr>
<tr>
<td>100-200</td>
<td>10-20</td>
<td>Corridor Stairs</td>
<td>150-300</td>
</tr>
<tr>
<td>200-750</td>
<td>20-75</td>
<td>Conference, Reception Room</td>
<td>300-750</td>
</tr>
<tr>
<td>750-1,500</td>
<td>75-150</td>
<td>Clerical Work</td>
<td>750-1,500</td>
</tr>
<tr>
<td>1,500-2,000</td>
<td>150-200</td>
<td>Typing, Drafting</td>
<td></td>
</tr>
<tr>
<td>Store</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75-150</td>
<td>7-15</td>
<td>Indoors</td>
<td>30-75</td>
</tr>
<tr>
<td>150-200</td>
<td>15-20</td>
<td>Corridor/Stairs</td>
<td>75-100</td>
</tr>
<tr>
<td>200-300</td>
<td>20-30</td>
<td>Reception</td>
<td>100-150</td>
</tr>
<tr>
<td>300-500</td>
<td>30-50</td>
<td>Display Stand</td>
<td>150-200</td>
</tr>
<tr>
<td>500-750</td>
<td>50-75</td>
<td>Elevator</td>
<td>200-750</td>
</tr>
<tr>
<td>750-1,500</td>
<td>75-150</td>
<td>Show Window, Packing Table</td>
<td>750-1,500</td>
</tr>
<tr>
<td>1,500-3,000</td>
<td>150-300</td>
<td>Storefront, Show Window</td>
<td>5,000-10,000</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>100-200</td>
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<td>Typing, Drafting</td>
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</tr>
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